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Terms	Documents
L1 and inverse near matrix	9

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<u>L6</u>	L1 and inverse near matrix	9	<u>L6</u>
<u>L5</u>	L2 and inverse same matrix	6	<u>L5</u>
<u>L4</u>	L2 and reverse near5 matrix	0	<u>L4</u>
<u>L3</u>	L2 and matrix	16	<u>L3</u>
<u>L2</u>	L1 and linear near algebra	18	<u>L2</u>
<u>L1</u>	data near mining	1977	<u>L1</u>

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Terms	Documents
demographic same assumption	34

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<u>L8</u>	demographic same assumption	34	<u>L8</u>
<u>L7</u>	L5 and actuarial near analysis	2	<u>L7</u>
<u>L6</u>	L5 and mathematical near assumption	6	<u>L6</u>
<u>L5</u>	linear adj algebra	825	<u>L5</u>
<u>L4</u>	L1 and correlations	69	<u>L4</u>
<u>L3</u>	L1 and mathematical near principles	0	<u>L3</u>
<u>L2</u>	L1 and mathematical near assumption	0	<u>L2</u>
<u>L1</u>	linear adj algorithm	302	<u>L1</u>

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L6: Entry 9 of 9

File: USPT

Apr 25, 2000

US-PAT-NO: 6055491

DOCUMENT-IDENTIFIER: US 6055491 A

TITLE: Method and apparatus for analyzing co-evolving time sequences

DATE-ISSUED: April 25, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE ZIP CODE	COUNTRY
Biliris; Alexandros	Chatham	NJ	
Faloutsos; Christos N.	Silver Spring	MD	
Jagadish; Hosagrahar Visvesvaraya	Berkeley Heights	NJ	
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Yi; Byoung-Kee	Greenbelt	MD	

ASSIGNEE-INFORMATION:

NAME	CITY	STATE ZIP CODE	COUNTRY	TYPE CODE
AT&T Corp.	New York	NY		02
University of Maryland	College Park	MD		02

APPL-NO: 08/ 953578 [PALM]

DATE FILED: October 17, 1997

INT-CL: [07] G06 G 7/19

US-CL-ISSUED: 702/176, 702/179, 702/181

US-CL-CURRENT: 702/176; 702/179, 702/181

FIELD-OF-SEARCH: 702/176, 702/179, 702/181, 705/10

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/> <u>5493516</u>	February 1996	Broomhead et al.	364/553
<input type="checkbox"/> <u>5586066</u>	December 1996	White et al.	364/576
<input type="checkbox"/> <u>5745383</u>	April 1998	Barber	364/554

OTHER PUBLICATIONS

Kil et al., "Optimum Window Size for Time Series Prediction", IEEE, Mar. 1997.

ART-UNIT: 287

PRIMARY-EXAMINER: Assouad; Patrick

ABSTRACT:

An analyzer system that analyzes a plurality of co-evolving time sequences to, for example, perform correlation or outlier detection on the time sequences. The plurality of co-evolving time sequences comprise a delayed time sequence and one or more known time sequences. A goal is to predict the delayed value given the available information. The plurality of time sequences have a present value and $(N-1)$ past values, where N is the number of samples (time-ticks) of each time sequence. The analyzer system receives the plurality of co-evolving time sequences and determines a window size ("w"). The analyzer then assigns the delayed time sequence as a dependent variable and the present value of a subset of the known time sequences, and the past values of the subset of known time sequences and the delayed time sequence, as a plurality of independent variables. Past values delayed by up to "w" steps are considered. The analyzer then forms an equation comprising the dependent variable and the independent variables, and then solves the equation using a least squares method. The delayed time sequence is then determined using the solved equation.

23 Claims, 16 Drawing figures